

REMARKS/ARGUMENTS

Claims 33, 36, 38-43, 45, 46 and 49-61 are pending in the present application. These claims are all presently under rejection.

In this Response, claims 33, 38-39, 45, 49-53 and 55 are amended. Claims 36 and 54 are cancelled without prejudice or disclaimer. The claim amendments are all entirely supported by the application as filed and thus, they raise no issue of new matter. Entry of the amendments with reconsideration of the application is respectfully requested. Upon such entry, claims 33, 38-43, 45-46, 49-53 and 55-61, as amended, will be pending in the application.

Examiner Interview

The applicant wishes to express his appreciation for the courtesies extended to his representative, Mark A. Farley, Esq. (Reg. No. 33,171) during a telephonic interview with the Examiner and his supervisor, Examiner Matt Savage, on September 11, 2009. The Examiner is particularly thanked for his comments in the Examiner Interview Summary (mailed September 17, 2009) concerning those features of the present invention which, subject to possible further search and consideration by the Examiner, appear to distinguish applicant's claimed method from the prior art references cited to reject applicant's claims. The claim amendments and remarks provided in this Response are believed to be in accordance with the matters discussed during the interview and as summarized by the Examiner in the Examiner Interview Summary.

A Statement of the Substance of the Interview with regard to the above-noted September 11th interview was filed, as required by the rules, by applicant's representative on October 16, 2009.

Claim Objections

Claims 50-53 are objected to because their preamble reads, "The method according to . . ." and it should, instead, read as, "The product according to . . .".

In response the subject claims have been amended as suggested by the Examiner to correct this obvious error.

Claim 53 is also objected to because it depends upon claim 44, which was cancelled in a previous submission.

In response, claim 53 has been further amended to change the dependency from claim 44 to claim 41.

Claim 55 is objected to as being in improper dependent form since claim 54, from which claim 55 depends, does not include the use of Pb^{+2} as an acceptable divalent metal ion.

In response, claim 55 has been amended to depend from claim 45 which, as also amended (i.e., to include, *inter alia*, the subject matter originally recited in claim 54), now includes Pb^{+2} in the list of acceptable divalent metal ions. Furthermore, claim 55 has also been amended to include proper Markush Group terminology by changing “or” to “and” in the recitation of the group.

The above-described amendments are believed to be sufficient for overcoming the various claim objections set forth on p. 2 of the Office Action. The Examiner is, thus, respectfully requested to reconsider and withdraw the objections.

Claim Rejections Under 35 U.S.C. §112.

Claim 49 is rejected under 35 U.S.C. 112, second paragraph, for the reasons set forth in para. 8 on p. 3 of the present Action.

In response, claim 49 has been amended, in the manner discussed with the Examiner during the September 11th interview to recite, *inter alia*, that the irreversible inhibitor is at least one divalent metal ion.

The above-described amendment is believed to be sufficient to overcome the rejection under §112, which should therefore be withdrawn.

Claim Rejections Under 35 U.S.C. §103

Claims 33 and 40 are rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over U.K. Patent No. 1,567,773 to Welwyn Hall Research Associates (“Welwyn”) in view of U.S. Patent No. 6,916,426 to Van Slyke et al. (“Van Slyke”). The rejection is respectfully traversed.

Before setting forth applicant’s response to this rejection applicant notes that, at the request of his U.S. counsel the Examiner in the “Interview Summary” provided his comments with regard to how, in his view, the present method may be distinguishable from the prior art cited in the present Office Action subject, of course, to the Examiner’s reservation of his right to undertake a further search and/or consideration upon receipt of this response. Applicant therefore

believes that it would be useful to quote here the Examiner's comments from the Interview Summary:

In considering the prior art, the claims, and applicants disclosure, it appears that applicant's invention is different from Van Slyke in that in applicant's invention the urease is permanently inhibited in [the] urea-rich liquid fraction rather than the urea being extracted as ammonia (see instant application pages 33 and 35, cf. Van Slyke). Applicants method step of irreversibly inhibiting the urease enzyme activity appears different from Welwyn in that applicant only treats the urea-rich fraction with the irreversible inhibitor, while Welwyn adds lime to a mixture of urine and feces (see instant application pages 33 and 34, cf. Welwyn as discussed in the previous rejection). The Examiner suggested incorporating the limitations of claim 36 into claim 33 in order to require both reversible and irreversible inhibition treatment steps on the waste, and also to claim that the irreversible inhibitor is added only to the urea-rich fraction which has been separated. Such an amendment would be received favorably by the Examiner

Applicant once again thanks the Examiner for his kind assistance in providing the comments quoted above.

In response to the "obviousness" rejection of claims 33 and 40 under §103, claim 33 has, therefore, been amended as suggested by the Examiner to incorporate therein the irreversible inhibition of the urea-rich fraction that was previously recited in claim 36. Claim 36 has, accordingly, been cancelled from the application without prejudice or disclaimer. Furthermore, the dependency of claims 38, 39 and 49 has been changed to claim 33 due to the cancellation of claim 36.

Since, based on the discussion above, the recitation of a irreversible inhibition of the urea-rich fraction is believed to distinguish, e.g., claim 33, over the cited combination of references, applicant has additionally amended the recitation of step b) in claim 33 to remove the requirement that the initial inhibition of urease in the collected waste matter from step a) be "reversible". Thus, as now set forth in the subject claim, it is certainly within the scope of claim 33 that the 'initial' inhibition, i.e., of urease activity in the collected waste matter from step a), be reversible, but this is no longer a requirement recited in the claim as now amended.

Based on the amendment to claim 33 and on the discussion presented above, therefore, the claim as amended is believed to be distinguishable over the cited combination of Welwyn and Van Slyke. The Examiner is, thus, requested to reconsider and withdraw the rejection of the subject claim under §103. Furthermore, as claim 40 depends upon claim 33 it contains all of the

features of the independent claim. Therefore, it is believed to be distinguishable for the same reasons as claim 33. The §103 rejection of claim 40 should, thus, also be withdrawn.

Further to the above, in ¶14 on p. 5 of the Office Action, claims 36, 48 and 49 are rejected under 35 U.S.C. 103(a) over Welwyn and Van Slyke, as applied to claim 33, and further in view of USP 6,287,550 to Trinh et al. ("Trinh"). Claims 36 and 48 are cancelled and thus the rejection is moot as to those claims. The rejection of the remaining claim, i.e., no. 49, is respectfully traversed.

Claim 49, as amended, now depends from claim 33. As such, the subject claim includes all of the features of the independent claim from which it depends. Based on the above, therefore, the claim is believed to be distinguishable over the combination of Welwyn and Van Slyke for the same reasons as claim 33.

Applicant recognizes, of course, that the subject rejection is based not only on Welwyn and Van Slyke, but also upon the disclosure of the Trinh reference in combination with the two above-noted patents. Trinh is directed to a very different field than applicant's presently claimed method, namely that of animal litter products. The problem of malodor in Trinh is addressed by the combined use of inhibition and absorbance of the malodor. That is, the nuisance from ammonia may be relieved both by inhibition and absorption of the malodor. No recovery of urea from the waste matter is intended in Trinh. Furthermore, many different known urease inhibitors are described in the subject reference.

According to the Office Action (see, e.g., p. 5), the method of Welwyn could be modified to use either acid (i.e., referring to Van Slyke) or metal ions (i.e., referring to Trinh). Such a modification, however, would not result in the presently claimed method. None of the prior art documents combined by the Examiner to reject, i.e., claim 49, discloses two inhibition steps – i.e., one before and one after the separation of a urea-rich and a urea-lean fraction. Furthermore, it is not obvious from any of the cited prior art references that that any advantages would be obtained in the methods described thereby by applying the two method steps recited in, e.g., claim 33 in the claimed sequence, in addition to the disclosure provided by Welwyn and/or Van Slyke.

As noted in applicant's prior response(s) and as discussed with the Examiner during the September 11th telephone interview, the intended use (i.e., application) for the end product has a huge impact on how the waste matter is to be treated. As taught in the present application, applicant's claimed end product is only usable (for the intended application(s)) if all of the

urease activity is inhibited immediately. Experiments have demonstrated that the urea will be transformed to ammonia within 7 to 8 minutes if there is no inhibition. Thus, carrying out the two claimed inhibition steps, i.e., one taking place immediately following excretion (in the barn), in which there is a constant flow of inhibitor (see specification, p. 32 ff), and one following the separation of the solids and the liquids, ensures that the urea is inhibited before any urea degradation has taken place, regardless of the nature/composition of the waste matter. The most critical part of the process is that concentrations of urea and urease in the waste matter will vary – obviously depending on which animals are involved. Therefore, finding the optimal concentration of inhibitor at all times is very difficult. The inventor of the presently claimed method found, therefore, that by inhibiting in two steps as claimed ensures that the concentration of the inhibitor is sufficient to prevent urea degradation in the entire system.

The Trinh reference, therefore, does not supply the element(s) of applicant's claimed method missing from the combination of Welwyn and Van Slyke and, thus, would not suggest the method recited in claim 49 (or claim 33 for that matter) to one having at least an ordinary level of skill in this field of art when combined with the other two references.

Based on the remarks presented above, therefore, the Examiner is respectfully requested to reconsider and withdraw the rejection of claim 49 under §103 over the combination of Welwyn, Van Slyke and Trinh.

In ¶18 on p. 6 of the Action, claim 39 is rejected under 35 U.S.C. 103 over Welwyn, Van Slyke and Trinh and further in view of Scott USP 154,092 ("Scott"). The rejection is respectfully traversed.

Claim 39, as amended, depends on independent claim 33. As in the case of claim 49 discussed above, claim 39 thus includes all of the features recited in claim 33. For the reasons above, claim 33 is believed to be distinguishable over the combination of Welwyn, Van Slyke and Trinh and thus claim 39 is believed to distinguish over the subject combination on the same basis as claim 33.

Applicant recognizes, of course, that the rejection in question is based on the combination of Scott with the other references mentioned above. However, even when Scott is taken together with those cited references, the combination would not suggest the method as recited in, e.g., claim 39 to one having an ordinary level of skill in this art. This is due to the fact that Scott does not teach or suggest the element(s) of the claimed method missing from the combination of the other three references. Scott is included, as indicated on p.6 of the Action, due to its disclosure

relating to the recovery of the inhibitor so that the inhibitor may be reused. Scott, however, does not teach or even suggest the two inhibition steps as recited, e.g., in claim 33, i.e., wherein the urease is permanently inhibited in the urea-rich liquid fraction. Since, therefore, the disclosure of Scott, when combined with Welwyn, Van Slyke and Trinh, does not teach or even suggest all of the features of applicant's method as included in the subject claim, the Examiner is respectfully requested reconsider and withdraw the §103 rejection based on the cited combination.

Still further, in ¶20 on p. 6 of the Action, claims 41-43 and 50-54 are rejected under 35 U.S.C. §103(a) over Welwyn + Van Slyke + Trinh, for the reasons given in ¶¶21-26. The rejection is respectfully traversed.

Each of the rejected claims is dependent, directly or indirectly, upon claim 33. As such, the subject claims include all of the features recited in independent claim 33. For the reasons given above, which are incorporated by reference into this discussion, claim 33 is believed to be distinguishable over Welwyn + Van Slyke + Trinh and, thus, claims 41-43 and 50-54 are also believed to distinguish over that combination, for the same reason(s) as claim 33.

The Examiner, therefore, is respectfully requested to reconsider and withdraw the rejection of claims 41-43 and 50-54 under 35 U.S.C. 103.

In ¶27 on p. 7 of the Action, claims 45, 46, 60 and 61 are rejected under 35 U.S.C. §103 as being allegedly 'obvious' over Welwyn in view of Van Slyke and USP No. 3,677,746 to Formaini. The rejection is respectfully traversed.

In response to the indicated ground of rejection, claim 45 has been amended (in a manner similar to claim 33) to include the feature previously recited in claim 54, i.e., an irreversible inhibition of urease activity in the urea-rich fraction. As recognized even by the Examiner, i.e., in the Interview Summary, neither Welwyn nor Van Slyke, taken singly or in combination, teach or even suggest the indicated feature and thus claim 45 (as amended) is distinguishable over Welwyn + Van Slyke.

Of course, applicant recognizes that the rejection of his claims is based on the combination of the Formaini reference with Welwyn + Van Slyke. Applicant notes further, however, that Formaini does not teach or even suggest to one having an ordinary level of skill in this art the element(s) of the invention, i.e., a second inhibition step involving an irreversible inhibition in the urea-rich fraction, missing from the combination of Welwyn and Van Slyke. Formaini is included, as indicated on p. 9 of the Office Action, due to its disclosure that solutions containing urea may be reacted with formaldehyde to produce an improved fertilizer suspension

composition. There is no indication in the Office Action, however, nor does applicant note any disclosure based upon a review of the reference itself, to carry out, *inter alia*, an irreversible inhibition of urease activity in a urea-rich fraction, as is now specifically recited in amended claim 45.

For the reasons given above, therefore, none of Welwyn, Van Slyke or Formaini, taken individually or in combination, either teach or suggest the method as recited in (amended) claim 45 to one having an ordinary level of skill in the relevant art. For this reason, the Examiner is respectfully requested to reconsider and withdraw the rejection of the subject claim. Furthermore, claims 46, 60 and 61 all depend directly on (amended) claim 45. As such, those claims include all of the features included in the subject independent claim and they are, therefore, believed to distinguish applicant's invention over the cited combination of references for the same reasons as claim 45. The Examiner should, therefore, also reconsider and withdraw the rejection of those dependent claims as well over 35 U.S.C. §103.

In ¶32 on p. 10, claims 54 and 55 are rejected under 35 U.S.C. 103 over Van Slyke and Formaini as applied to claim 45, and further in view of Trinh. The rejection is respectfully traversed.

Claim 54 has been cancelled without prejudice or disclaimer and thus the rejection is moot as to that claim. Furthermore, claim 55 has been amended such that it now depends from claim 45 as amended (see the discussion above re: the amendment to claim 45). Neither Van Slyke, nor Formaini nor Trinh, whether taken individually or in combination, teach or suggest the method recited in claim 45, and thus in claim 55, for the reasons given in the discussion of the other rejections made in this case, which discussion is specifically incorporated herein by reference. In particular, the combined disclosures of the three cited references entirely fails to teach or suggest a method as recited in (amended) claim 45 which entails, *inter alia*, a second inhibition involving an irreversible inhibition of urease activity in a urea-rich fraction. For this reason, therefore, the Examiner is respectfully requested to reconsider and withdraw the rejection of claim 55 as described above under 35 U.S.C. 103.

In ¶35 on p. 10, claims 56-59 are rejected under 35 U.S.C. §103 over Welwyn, Van Slyke and Formaini as applied above, and further in view of Published U.S. Patent Application No. 2001/0047963 of Morita et al. ("Morita"). The rejection is respectfully traversed.

In response, applicant notes that the rejected claims are dependent upon claim 45 and thus the subject claims include all of the features found in that claim. Thus the claims are

distinguishable over the combination of Welwyn + Van Slyke + Formaini for the reasons set forth above. Applicant recognizes, of course, that the rejection is based on the combination of the Morita reference with the other three noted above. Morita, however, does not supply the element(s) of the method recited in, e.g., claim 45 missing from those references which are previously discussed, i.e., including a second inhibition step involving the irreversible inhibition of urease activity in a urea-rich fraction. That is, as indicated in ¶36 on p. 10 of the Action, Morita is cited due to its disclosure regarding the use of various filtering techniques (e.g., nano-filtration and reverse osmosis) in order to obtain a urea permeate from sewage for various industrial processes. There is no teaching or suggestion, however, to be found in the reference, with regard to a second irreversible inhibition step as noted above. Thus, even in the case where the disclosure of Morita is combined with that of the other three references cited, assuming that there is a teaching or suggestion to do so, the resultant combination still would not lead to a process as recited in claim 45 and, by extension, in claims 56-59.

The Examiner, therefore, is respectfully requested to reconsider and withdraw the rejection under 35 U.S.C. §103 of the subject claims.

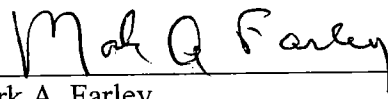
Summary

Applicant submits that the claim amendments and the remarks provided herein are believed to be sufficient to overcome all of the objections and rejections of his claims. Thus the Examiner is respectfully requested to reconsider and withdraw the subject objections/rejections and to issue a Notice of Allowance for all of the claims remaining in this application.

THIS CORRESPONDENCE IS BEING
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MAF:stb

Respectfully submitted,



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